

## SEQUENCE LISTING

<110> Cooper, Richard K.  
 Enright, Frederick M.  
 Fioretti, William C.

<120> Gene Therapy Using Transposon-Based Vectors

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 <141> 2006-06-22

<150> PCT/US2004/43092  
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<150> US 60/592,098  
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aggcacctat ctacgcgatc tgtctatttc gttcatccat agttgcctga ctccccgtcg	6780
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gagacccacg ctcaccggct ccagatttat cagcaataaa ccagccagcc ggaagggccg 6900
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aagctagagt aagtagttcg ccagttaata gtttgcgcaa cgttggtgcc attgctacag 7020
gcatcgtggg gtcacgctcg tcgtttggta tggcttcatt cagctccggg tcccaacgat 7080
caaggcgagt tacatgatcc cccatgttgt gcaaaaaagc ggtagctcc ttcggtcctc 7140
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ataattctct tactgtcatg ccatccgtaa gatgcttttc tgtgactggg gagtactcaa 7260
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cggggcgaaa actctcaagg atcttaccgc tggtgagatc cagttcgatg taaccactc 7440
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caggaaggca aaatgccgca aaaaaggga taagggcgac acggaaatgt tgaatactca 7560
tactcttcct ttttcaatat tattgaagca tttatcaggg ttattgtctc atgagcggat 7620
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aagtgccac 7689

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<210> 8
<211> 6
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Modified Kozak sequence

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<400> 8
accatg

```

6

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<210> 9
<211> 7
<212> DNA
<213> Artificial Sequence

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```

<220>
<223> Kozak sequence

```

```

<400> 9

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accatgg

7

<210> 10

<400> 10  
000

<210> 11

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 11

aagatgt

7

<210> 12

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 12

acgatga

7

<210> 13

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 13

aagatgg

7

<210> 14

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 14  
gacatga 7

<210> 15  
<211> 7  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Kozak sequence

<400> 15  
accatga 7

<210> 16  
<211> 7  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Kozak sequence

<400> 16  
accatgt 7

<210> 17  
<211> 315  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Base pairs 10651-11058 from GenBank Accession No Y00407 (Gallus sp.)

<400> 17  
tctgccattg ctgcttcctc tgcccttcct cgtcactctg aatgtggctt ctctgctact 60  
gccacagcaa gaaataaaat ctcaacatct aaatggggtt cctgagggtt ttcaagagtc 120  
gttaagcaca ttccttcccc agcaccctt gctgcaggcc agtgccaggc accaacttgg 180  
ctactgctgc ccatgagaga aatccagttc aatattttcc aaagcaaaat ggattacata 240  
tgccctagat cctgattaac aggcgtttgt attatctagt gctttcgctt caccagatt 300  
atccattgc ctccc 315

<210> 18  
<211> 361

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 18  
 ggcgcctgga tccagatcac ttctggctaa taaaagatca gagctctaga gatctgtgtg 60  
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 cccgtgcctt ccttgaccct ggaagggtgcc actcccactg tcctttccta ataaaatgag 180  
 gaaattgcat cgcattgtct gagtaggtgt cattctattc tgggggggtgg ggtggggcag 240  
 cacagcaagg gggaggattg ggaagacaat agcaggcatg ctgggggatgc ggtgggctct 300  
 atgggtacct ctctctctct ctctctctct ctctctctct ctctctctcg gtacctctct 360  
 c 361

<210> 19  
 <211> 350  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 19  
 ggggatcgct ctagagcgat ccgggatctc gggaaaagcg ttggtgacca aagggtgcctt 60  
 ttatcatcac tttaaaaata aaaaacaatt actcagtgcc tggtataagc agcaattaat 120  
 tatgattgat gcctacatca caacaaaaac tgatttaaca aatgggttgggt ctgccttaga 180  
 aagtatatatt gaacattatc ttgattatat tattgataat aataaaaacc ttatccctat 240  
 ccaagaagtg atgcctatca ttgggttgga tgaacttgaa aaaaattagc cttgaataca 300  
 ttactggtaa ggtaaacgcc attgtcagca aattgatcca agagaaccaa 350

<210> 20  
 <211> 908  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 1 - 1158 from GenBank Accession No. X00345 (Gallus sp.)



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<400> 20
tgaatgtggt cttgtgttat caatataaat cacagttagt gatgaagttg gctgcaagcc      60
tgcatacagtt cagctacttg gctgcatttt gtatttggtt ctgtaggaaa tgcaaaaggt    120
tctaggctga cctgcacttc tatccctctt gccttactgc tgagaatctc tgcaggtttt    180
aattgttcac attttgctcc catttacttt ggaagataaa atatttacag aatgcttatg    240
aaacctttgt tcatttataaa atattcctgg tcagcgtgac cggagctgaa agaacacatt    300
gatcccgtga tttcaataaa tacatatggt ccatatattg tttctcagta gcctcttaaa    360
tcatgtgcgt tgggtgcacat atgaatacat gaatagcaaa ggtttatctg gattacgctc    420
tggcctgcag gaatggccat aaaccaaagc tgagggaaga gggagagtat agtcaatgta    480
gattatactg attgctgatt gggttattat cagctagata acaacttggg tcaggtgcca    540
ggtcaacata acctgggcaa aaccagtctc atctgtggca ggaccatgta ccagcagcca    600
gccgtgaccc aatctaggaa agcaagtagc acatcaattt taaatttatt gtaaatagccg    660
tagtagaagt gttttactgt gatacattga aacttctggt caatcagaaa aaggtttttt    720
atcagagatg ccaaggtatt atttgatttt ctttatctgc cgtgaagaga atttatgatt    780
gcaaaaagag gagtgtttac ataaactgat aaaaaacttg aggaattcag cagaaaacag    840
ccacgtgttc ctgaacattc ttccataaaa gtctcaccat gcctggcaga gccctattca    900
ccttcgct                                         908

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```

<210> 21
<211> 901
<212> DNA
<213> Artificial Sequence

```

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<220>
<223> Base pairs 431-1331 from GenBank Accession No. J00895 (Gallus
      sp.)

```

```

<400> 21
gaggtcagaa tggtttcttt actgtttgtc aattctatta tttcaatata gaacaatagc      60
ttctataact gaaatatatt tgctattgta tattatgatt gtccttcgaa ccatgaacac    120
tcctccagct gaatttcaca attcctctgt catctgccag gccattaagt tattcatgga    180
agatctttga ggaacactgc aagttcatat cataaacaca tttgaaattg agtattgttt    240
tgcattgtat ggagctatgt tttgctgtat cctcagaaaa aaagtttggt ataaagcatt    300

```

```

cacacccata aaaagataga tttaaattatt ccagctatag gaaagaaagt gcgtctgctc 360
ttcactctag tctcagttgg ctcccttcaca tgcattgcttc tttattttctc ctattttgtc 420
aagaaaataa taggtcacgt cttgtttctca cttatgtcct gcctagcatg gctcagatgc 480
acgttgtaga tacaagaagg atcaaatgaa acagacttct ggtctgttac tacaaccata 540
gtaataagca cactaactaa taattgctaa ttatgttttc catctctaag gttcccacat 600
ttttctgttt tcttaaagat cccattatct gggtgtaact gaagctcaat ggaacatgag 660
caatatttcc cagtcttctc tcccatccaa cagtcctgat ggattagcag aacaggcaga 720
aaacacattg ttaccagaa ttaaaaacta atatttgctc tccattcaat ccaaaatgga 780
cctattgaaa ctaaaatcta acccaatccc attaaatgat ttctatggcg tcaaaggcca 840
aacttctgaa gggaacctgt ggggtgggtca caattcaggc tatatatcc ccagggtca 900
g 901

```

```

<210> 22
<211> 680
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Synthetic

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```

<400> 22
ccgggctgca gaaaaatgcc aggtggacta tgaactcaca tccaaaggag cttgacctga 60
tacctgattt tcttcaaact ggggaaacaa cacaatccca caaaacagct cagagagaaa 120
ccatcactga tggctacagc accaagggtat gcaatggcaa tccattcgac attcatctgt 180
gacctgagca aaatgattta tctctccatg aatggttgct tctttccctc atgaaaaggc 240
aatttccaca ctcaaatat gcaacaaaga caaacagaga acaattaatg tgctccttcc 300
taatgtcaaa attgtagtgg caaagaggag aacaaaatct caagttctga gtaggtttta 360
gtgattggat aagaggcttt gacctgtgag ctacactgga cttcatatcc ttttggataa 420
aaagtgcctt tataactttc aggtctccga gtctttattc atgagactgt tggtttaggg 480
acagaccac aatgaaatgc ctggcatagg aaagggcagc agagccttag ctgacctttt 540
cttgggacaa gcattgtcaa acaatgtgtg acaaaactat ttgtactgct ttgcacagct 600

```

gtgctgggca gggcaatcca ttgccaccta tcccaggtaa ccttccaact gcaagaagat 660  
 tgttgcttac tctctctaga 680

<210> 23  
 <211> 72  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 23  
 gtggatcaac atacagctag aaagctgtat tgccttttagc actcaagctc aaaagacaac 60  
 tcagagttca cc 72

<210> 24  
 <211> 62  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> From GenBank Accession No. J00895 (Gallus sp.)

<400> 24  
 acatacagct agaaagctgt attgccttta gcactcaagc tcaaaagaca actcagagtt 60  
 ca 62

<210> 25  
 <211> 1158  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 66 - 1223 from GenBank Accession No. J00895 (Gallus sp.)

<400> 25  
 atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa ggagctcaaa 60  
 gtccaccatg ccaatgagaa catcttctac tgccccattg ccatcatgtc agctctagcc 120  
 atggtatacc tgggtgcaaa agacagcacc aggacacaga taaataaggt tgttcgcttt 180  
 gataaacttc caggattcgg agacagtatt gaagctcagt gtggcacatc tgtaaacggt 240  
 cactcttcac ttagagacat cctcaaccaa atcaccaaac caaatgatgt ttattcggtc 300

```

agccttgcca gtagacttta tgctgaagag agatacccaa tcctgccaga atacttgtag 360
tgtgtgaagg aactgtatag aggaggcttg gaacctatca actttcaaac agctgcagat 420
caagccagag agctcatcaa ttcctgggta gaaagtcaga caaatggaat tatcagaaat 480
gtccttcagc caagctccgt ggatttctcaa actgcaatgg ttctgggttaa tgccattgtc 540
ttcaaaggac tgtgggagaa aacattttaag gatgaagaca cacaagcaat gcctttcaga 600
gtgactgagc aagaaagcaa acctgtgcag atgatgtacc agattgggtt atttagagtg 660
gcatcaatgg cttctgagaa aatgaagatc ctggagcttc catttgccag tgggacaatg 720
agcatgttgg tgctgttgcc tgatgaagtc tcaggccttg agcagcttga gagtataatc 780
aactttgaaa aactgactga atggaccagt tctaattgta tggaagagag gaagatcaaa 840
gtgtacttac ctgcatgaa gatggaggaa aaatacaacc tcacatctgt cttaatggct 900
atgggcatta ctgacgtggt tagctcttca gccaatctgt ctggcatctc ctcagcagag 960
agcctgaaga tatctcaagc tgtccatgca gcacatgcag aaatcaatga agcaggcaga 1020
gaggtggtag ggtcagcaga ggctggagtg gatgctgcaa gcgtctctga agaatttagg 1080
gctgaccatc cattcctctt ctgtatcaag cacatcgcaa ccaacgccgt tctcttcttt 1140
ggcagatgtg tttccctt 1158

```

```

<210> 26
<211> 53
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Synthetic

```

```

<400> 26
atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa gga 53

```

```

<210> 27
<211> 103
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Synthetic

```

```

<400> 27
atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa ggagctcaaa 60

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gtccaccatg ccaatgagaa catcttctac tgccccattg cca 103

<210> 28  
 <211> 63  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 1145 - 1198 from GenBank Accession No. X00345 (Gallus sp.)

<400> 28  
 atgaggggga tcatactggc attagtgtc acccttgtag gcagccagaa gtttgacatt 60  
 ggt 63

<210> 29  
 <211> 260  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 117 - 377 from GenBank Accession No. NM000207 (Homo sapiens)

<400> 29  
 tttgtgaacc aacacctgtg cggtcacac ctggtggaag ctctctacct agtgtgcggg 60  
 gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcaggtgggg 120  
 caggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180  
 tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcatctgctc cctctaccag 240  
 ctggagaact ctgcaactag 260

<210> 30  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 30

Lys Tyr Lys Lys Ala Leu Lys Lys Leu Ala Lys Leu Leu  
 1 5 10

<210> 31  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 31  
 aaatacaaaa aagcactgaa aaaactggca aaactgctg

39

<210> 32  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> (Gly Pro Gly Gly) x where x is an integer from 3-9

<400> 32

Gly Pro Gly Gly  
 1

<210> 33  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 33

Gly Pro Gly Gly Gly Pro Gly Gly Gly Pro Gly Gly  
 1 5 10

<210> 34  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 34

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 1 5 10 15

<210> 35  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 35

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 1 5 10 15

Gly Gly Gly Ser  
 20

<210> 36  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 36

Pro Ala Asp Asp Ala  
 1 5

<210> 37  
 <211> 29  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 37

Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro  
 1 5 10 15

Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp  
 20 25

<210> 38



<211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 38

Ala	Thr	Thr	Cys	Ile	Leu	Lys	Gly	Ser	Cys	Gly	Trp	Ile	Gly	Leu	Leu
1				5					10					15	

<210> 39  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 39

Pro	Ala	Asp	Asp	Ala	Pro	Ala	Asp	Asp	Ala	Thr	Thr	Cys	Ile	Leu	Lys
1				5					10					15	

Gly	Ser	Cys	Gly	Trp	Ile	Gly	Leu	Leu	Asp	Asp	Asp	Asp	Lys
			20				25						30

<210> 40  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 40

Asp	Asp	Asp	Asp	Lys
1				5

<210> 41  
 <211> 50  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 41

Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro  
1 5 10 15

Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Thr Thr  
20 25 30

Cys Ile Leu Lys Gly Ser Cys Gly Trp Ile Gly Leu Leu Asp Asp Asp  
35 40 45

Asp Lys  
50

<210> 42

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 42

atctcgagac catgtgtgaa cttgatattt tacatgattc tctttacc

48

<210> 43

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 43

gattgatcat tatcataatt tccccaaagc gtaacc

36

<210> 44

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 44

Met Glu His Trp Ser Tyr Gly Leu Arg Pro Gly Lys Phe Ala Ile Cys

1 5 10 15

Lys Lys Phe Ala Ile Cys  
20

<210> 45  
<211> 24  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Synthetic

<400> 45

Glu His Trp Ser Tyr Gly Leu Arg Pro Gly Lys Phe Ala Lys Phe Ala  
1 5 10 15

Lys Lys Phe Ala Lys Phe Ala Lys  
20

<210> 46  
<211> 30  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Synthetic

<400> 46

Met Lys Phe Ala Lys Phe Ala Lys Lys Phe Ala Lys Phe Ala Lys Ser  
1 5 10 15

Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg  
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